Fig. 1

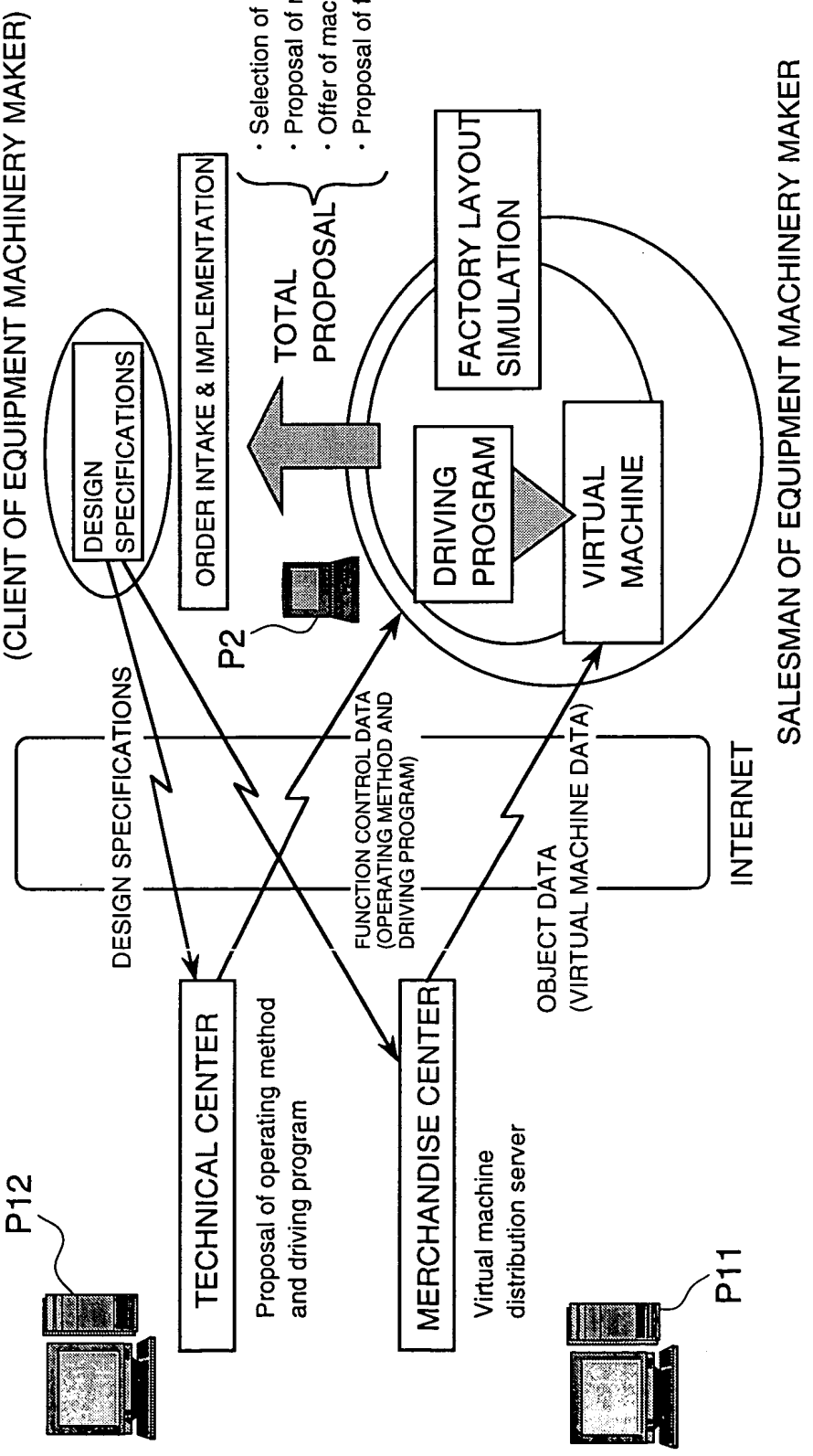

MANUFACTURER
(CLIENT OF EQUIPMENT MACHINERY MAKER)
DESIGN SPECIFICATIONS
ORDER INTAKE & IMPLEMENTATION
TOTAL PROPOSAL
• Selection of equipment
• Proposal of machining method
• Offer of machining program
• Proposal of factory layout
FACTORY LAYOUT SIMULATION
DRIVING PROGRAM
VIRTUAL MACHINE
P2
P12
P11
TECHNICAL CENTER
Proposal of operating method and driving program
MERCHANDISE CENTER
Virtual machine distribution server
DESIGN SPECIFICATIONS
FUNCTION CONTROL DATA (OPERATING METHOD AND DRIVING PROGRAM)
OBJECT DATA (VIRTUAL MACHINE DATA)
INTERNET
SALESMAN OF EQUIPMENT MACHINERY MAKER

Fig. 2

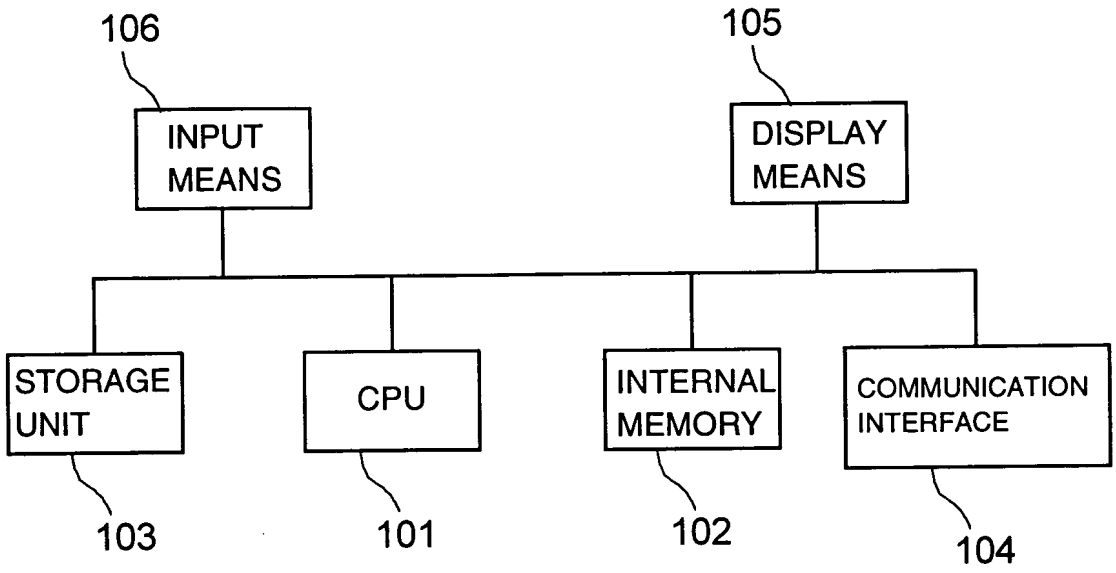

106
105
INPUT MEANS
DISPLAY MEANS
STORAGE UNIT
CPU
INTERNAL MEMORY
COMMUNICATION INTERFACE
103
101
102
104

Fig.3

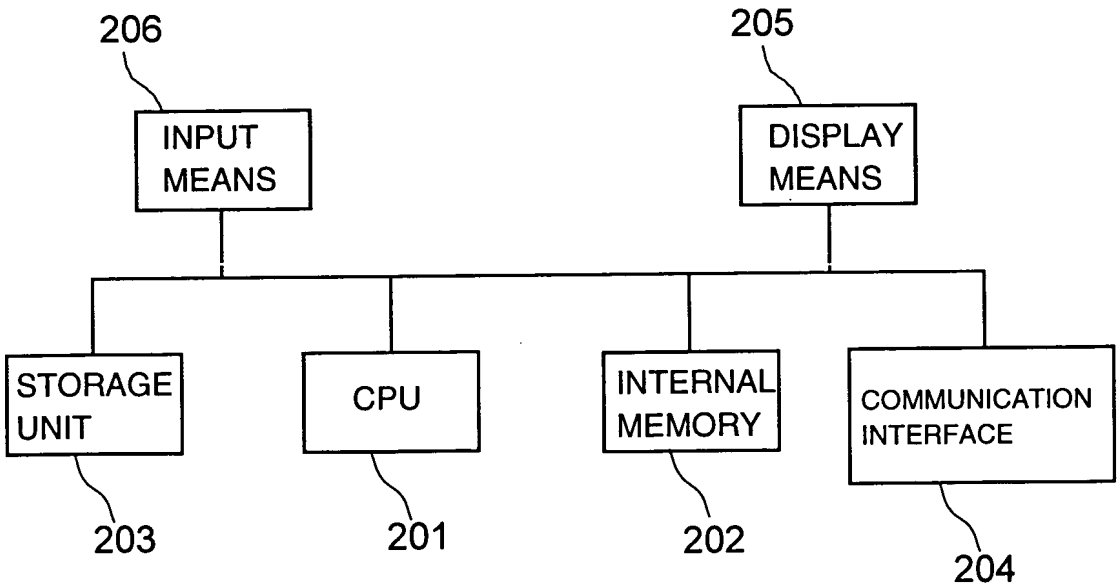

206
205
INPUT MEANS
DISPLAY MEANS
STORAGE UNIT
CPU
INTERNAL MEMORY
COMMUNICATION INTERFACE
203
201
202
204

Fig. 4

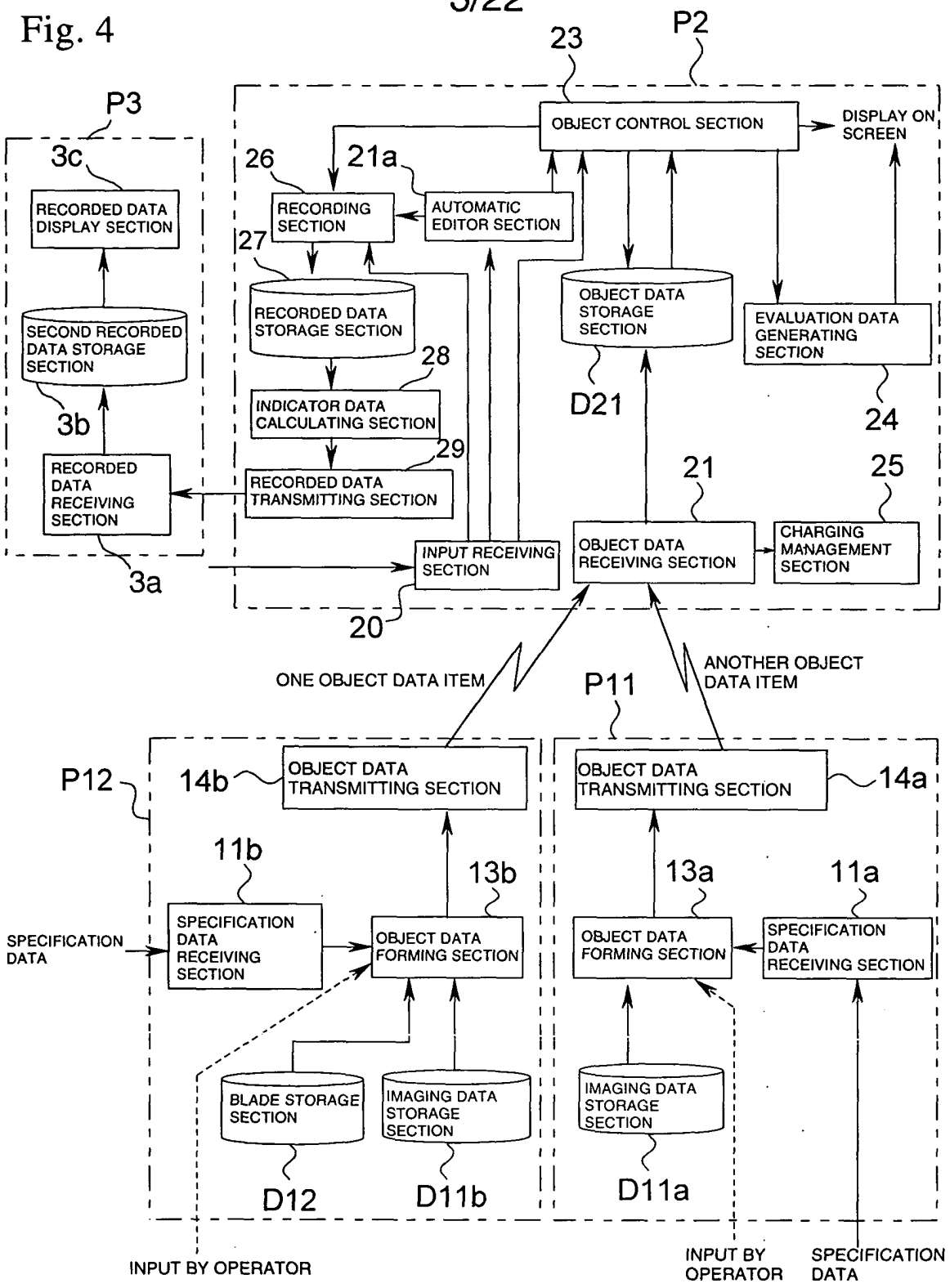

P2
23
P3
3c
OBJECT CONTROL SECTION
DISPLAY ON SCREEN
26
21a
RECORDING SECTION
AUTOMATIC EDITOR SECTION
RECORDED DATA DISPLAY SECTION
27
RECORDED DATA STORAGE SECTION
OBJECT DATA STORAGE SECTION
EVALUATION DATA GENERATING SECTION
SECOND RECORDED DATA STORAGE SECTION
28
INDICATOR DATA CALCULATING SECTION
D21
24
3b
29
RECORDED DATA RECEIVING SECTION
RECORDED DATA TRANSMITTING SECTION
21
25
INPUT RECEIVING SECTION
OBJECT DATA RECEIVING SECTION
CHARGING MANAGEMENT SECTION
3a
20
ONE OBJECT DATA ITEM
ANOTHER OBJECT DATA ITEM
P11
P12
14b
OBJECT DATA TRANSMITTING SECTION
OBJECT DATA TRANSMITTING SECTION
14a
11b
13b
13a
11a
SPECIFICATION DATA
SPECIFICATION DATA RECEIVING SECTION
OBJECT DATA FORMING SECTION
OBJECT DATA FORMING SECTION
SPECIFICATION DATA RECEIVING SECTION
BLADE STORAGE SECTION
IMAGING DATA STORAGE SECTION
IMAGING DATA STORAGE SECTION
D12
D11b
D11a
INPUT BY OPERATOR
INPUT BY OPERATOR
SPECIFICATION DATA

Fig. 5

SPECIFICATION DATA

SPECIFICATION DATA IDENTIFIER	SHAPE DATA	MATERIAL DATA	COATING DATA	NUMBER OF PRODUCTS / MONTH
a12	xx2.yyy	sus301	○×□	15
a15	xx5.yyy	sus301	×△△	220

Fig. 6

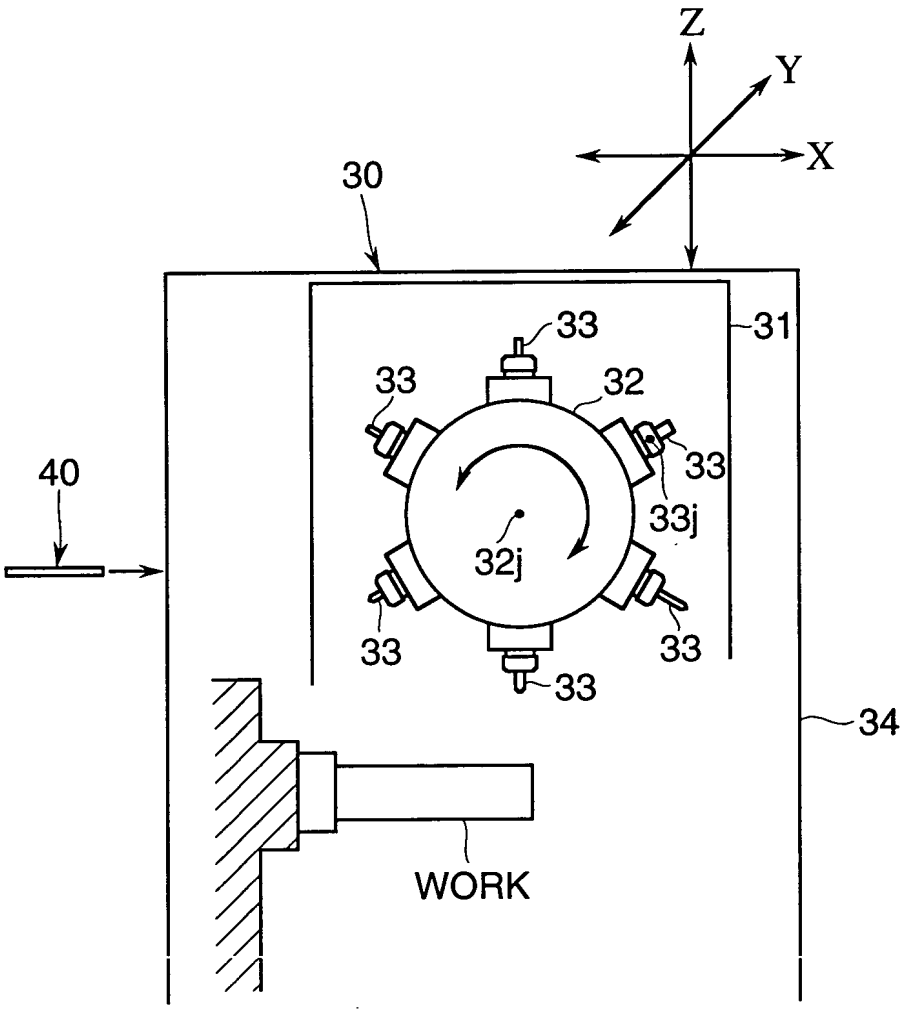


Fig. 7

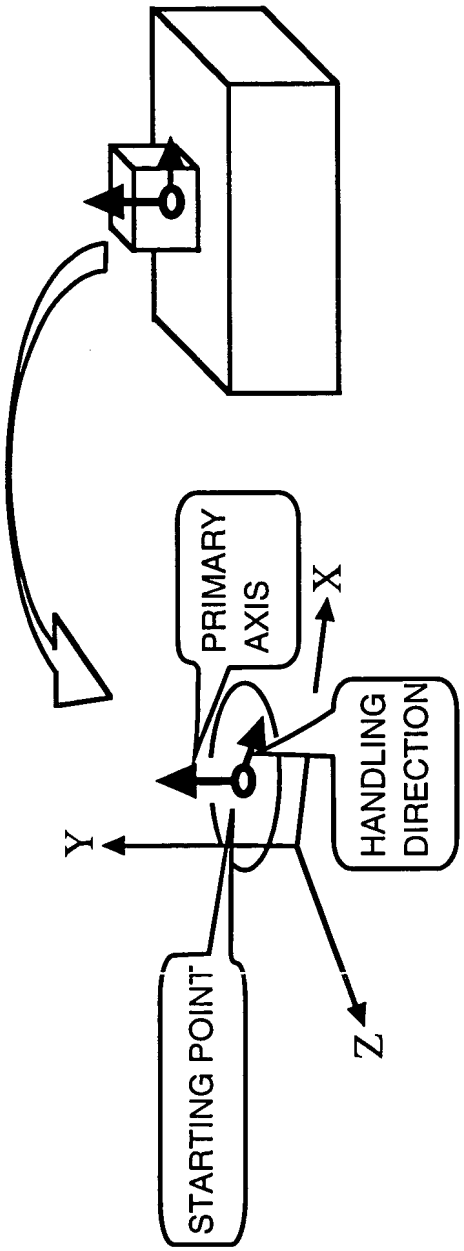


Fig. 8

OBJECT DATA STRUCTURE

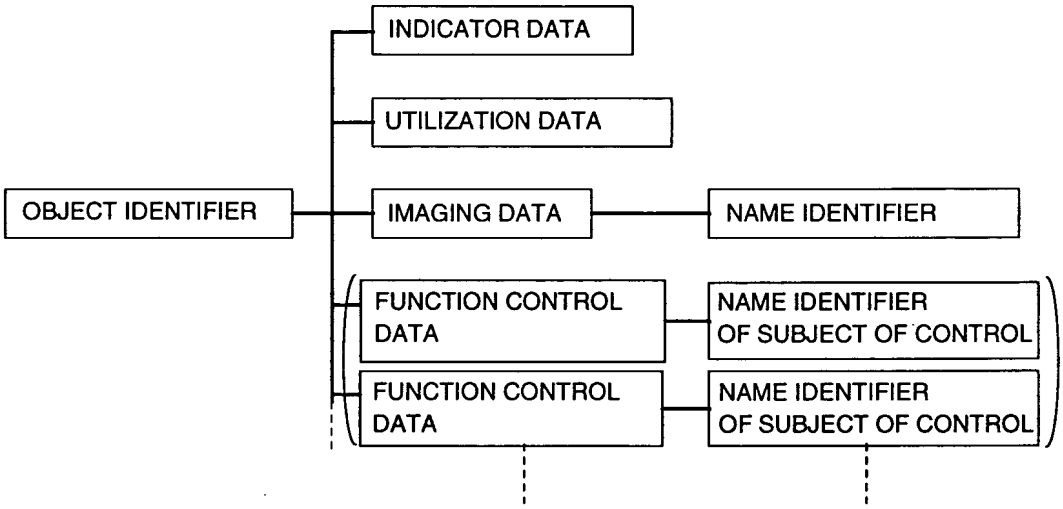
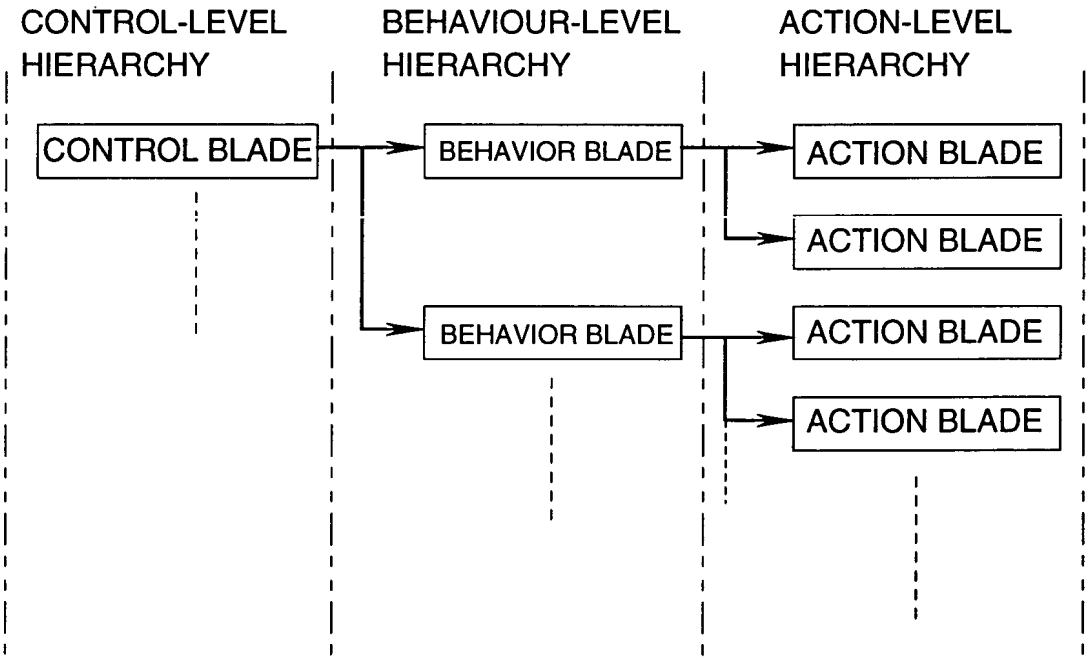


Fig. 9

FUNCTION CONTROL DATA STRUCTURE



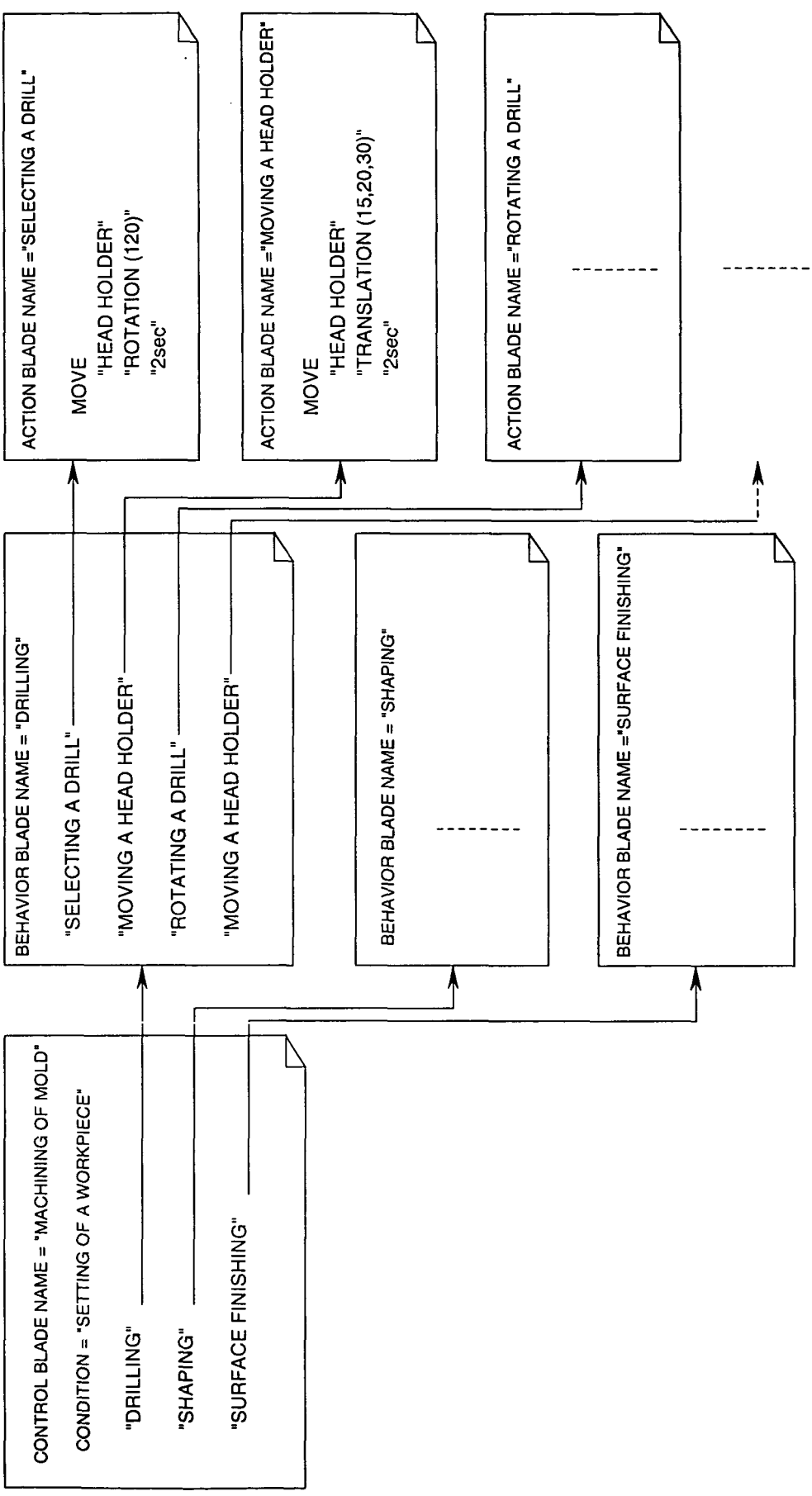

CONTROL BLADE NAME = "MACHINING OF MOLD"
CONDITION = "SETTING OF A WORKPIECE"
"DRILLING"
"SHAPING"
"SURFACE FINISHING"
BEHAVIOR BLADE NAME = "DRILLING"
"SELECTING A DRILL"
"MOVING A HEAD HOLDER"
"ROTATING A DRILL"
"MOVING A HEAD HOLDER"
BEHAVIOR BLADE NAME = "SHAPING"
BEHAVIOR BLADE NAME ="SURFACE FINISHING"
ACTION BLADE NAME ="SELECTING A DRILL"
MOVE
"HEAD HOLDER"
"ROTATION (120)"
"2sec"
ACTION BLADE NAME ="MOVING A HEAD HOLDER"
MOVE
"HEAD HOLDER"
"TRANSLATION (15,20,30)"
"2sec"
ACTION BLADE NAME ="ROTATING A DRILL"

Fig. 10

Fig. 11

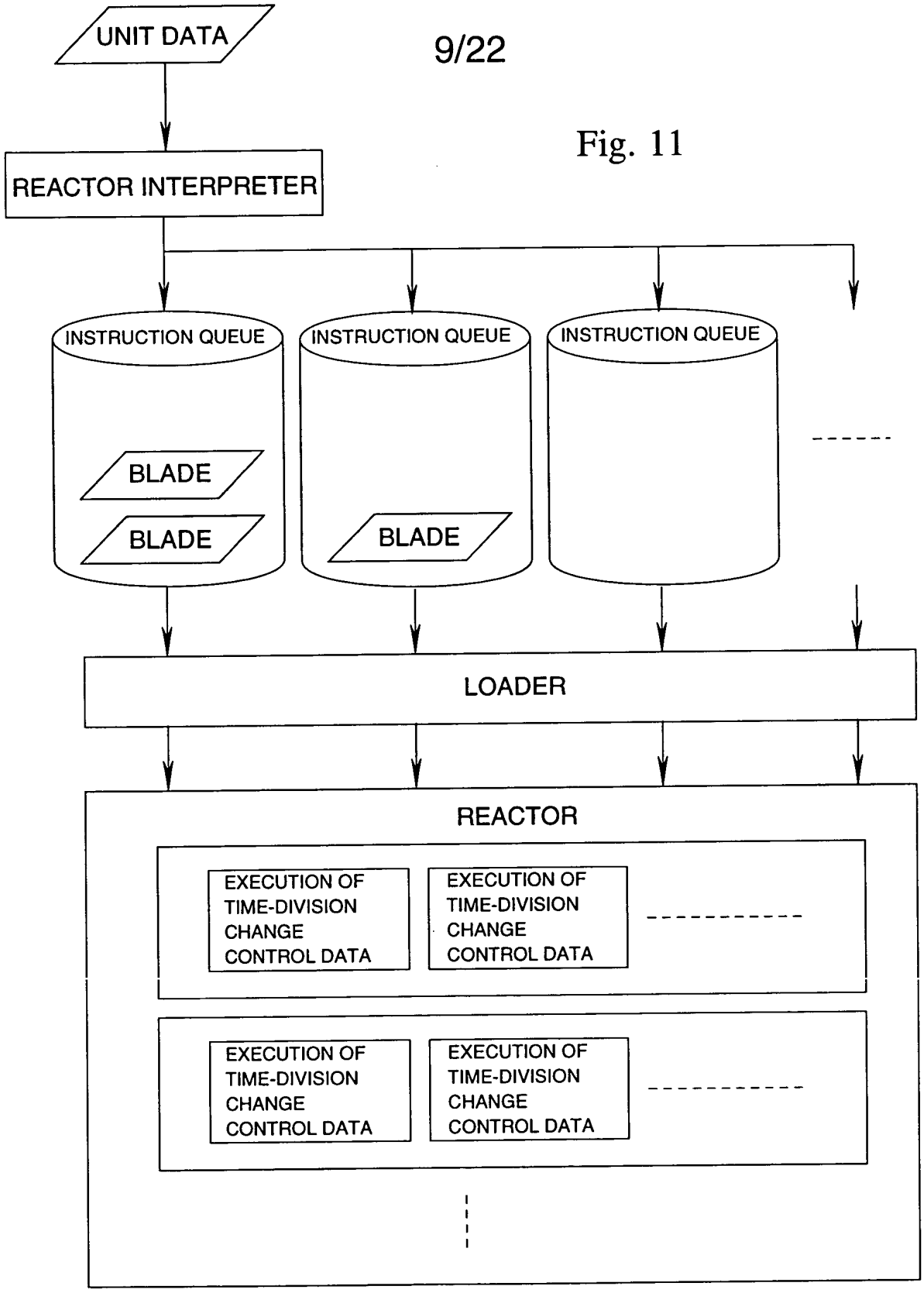

UNIT DATA
REACTOR INTERPRETER
INSTRUCTION QUEUE
INSTRUCTION QUEUE
INSTRUCTION QUEUE
BLADE
BLADE
BLADE
LOADER
REACTOR
EXECUTION OF TIME-DIVISION CHANGE CONTROL DATA
EXECUTION OF TIME-DIVISION CHANGE CONTROL DATA
EXECUTION OF TIME-DIVISION CHANGE CONTROL DATA
EXECUTION OF TIME-DIVISION CHANGE CONTROL DATA

Fig. 12

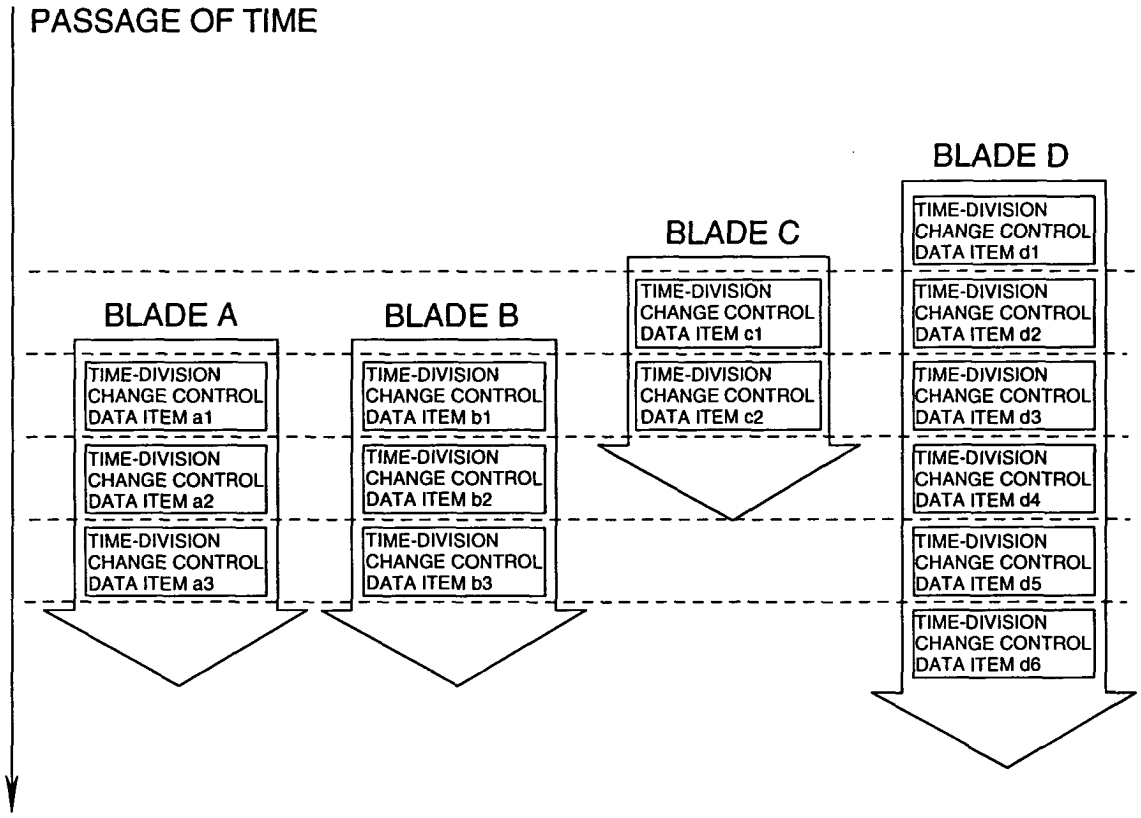


Fig. 13

BLADE CONTROL DATA

CONDITION = "CLICKING THE MOUSE"
ADD BEHAVIOR BLADE
BLADE = "DRILLING"
TO "MACHINING OF MOLD"

Fig. 14

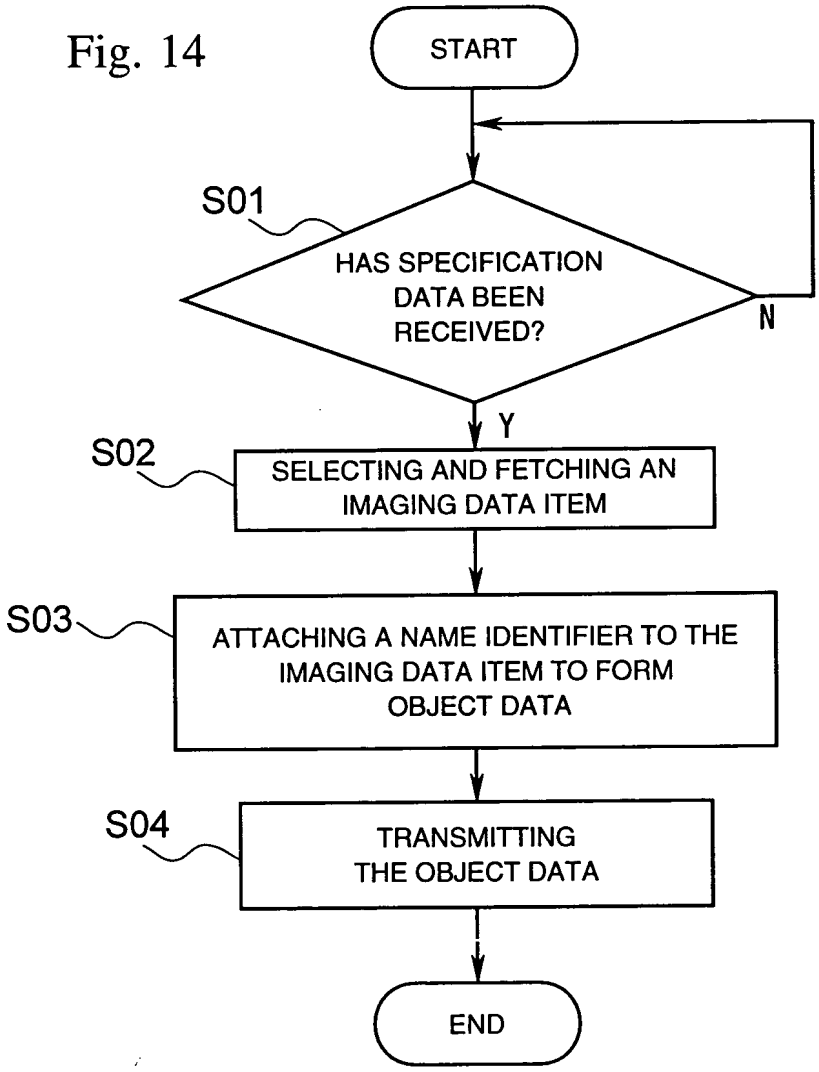

START
S01
HAS SPECIFICATION DATA BEEN RECEIVED?
N
Y
S02
SELECTING AND FETCHING AN IMAGING DATA ITEM
S03
ATTACHING A NAME IDENTIFIER TO THE IMAGING DATA ITEM TO FORM OBJECT DATA
S04
TRANSMITTING THE OBJECT DATA
END

Fig. 15

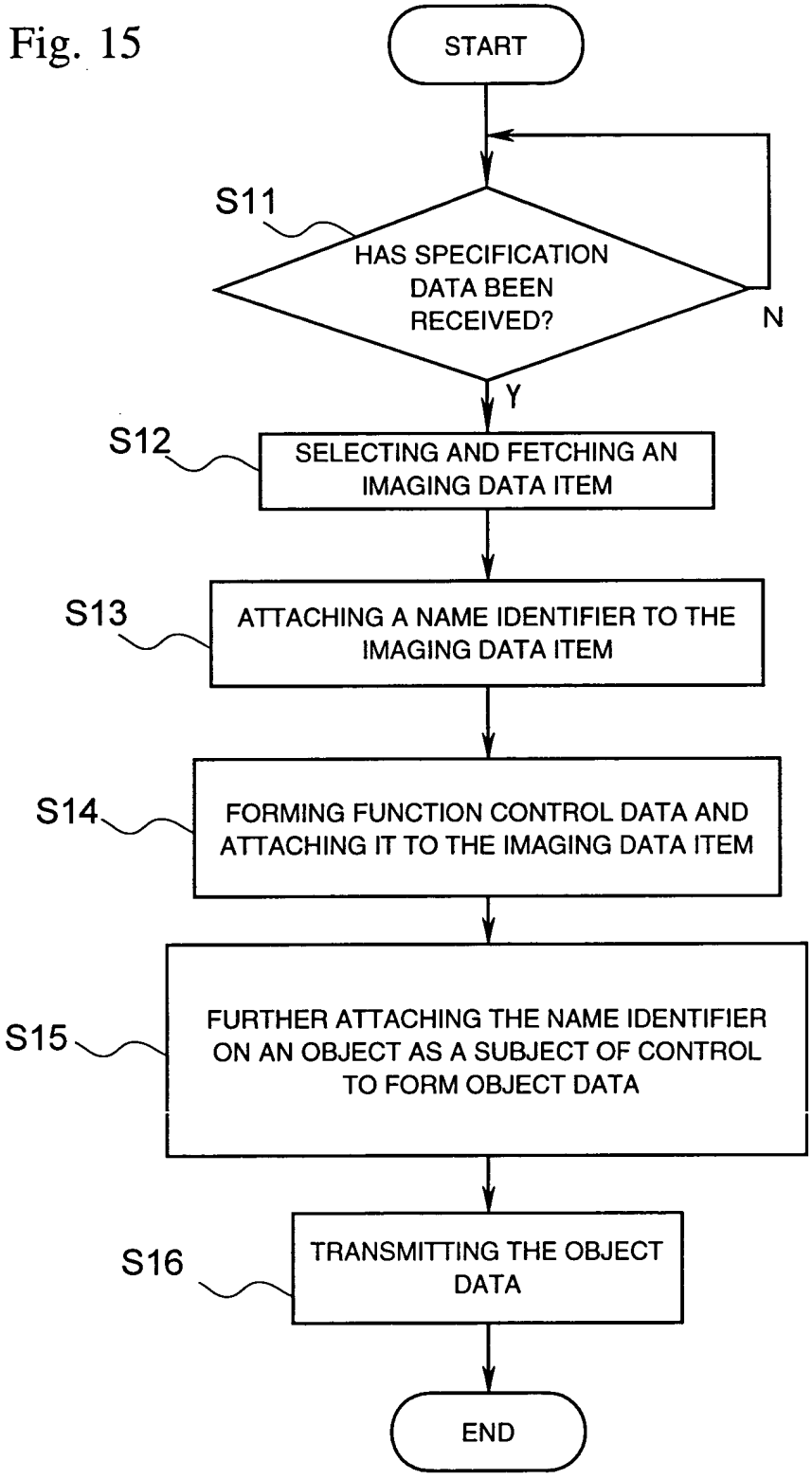

START
S11
HAS SPECIFICATION DATA BEEN RECEIVED?
N
Y
S12
SELECTING AND FETCHING AN IMAGING DATA ITEM
S13
ATTACHING A NAME IDENTIFIER TO THE IMAGING DATA ITEM
S14
FORMING FUNCTION CONTROL DATA AND ATTACHING IT TO THE IMAGING DATA ITEM
S15
FURTHER ATTACHING THE NAME IDENTIFIER ON AN OBJECT AS A SUBJECT OF CONTROL TO FORM OBJECT DATA
S16
TRANSMITTING THE OBJECT DATA
END

Fig. 16

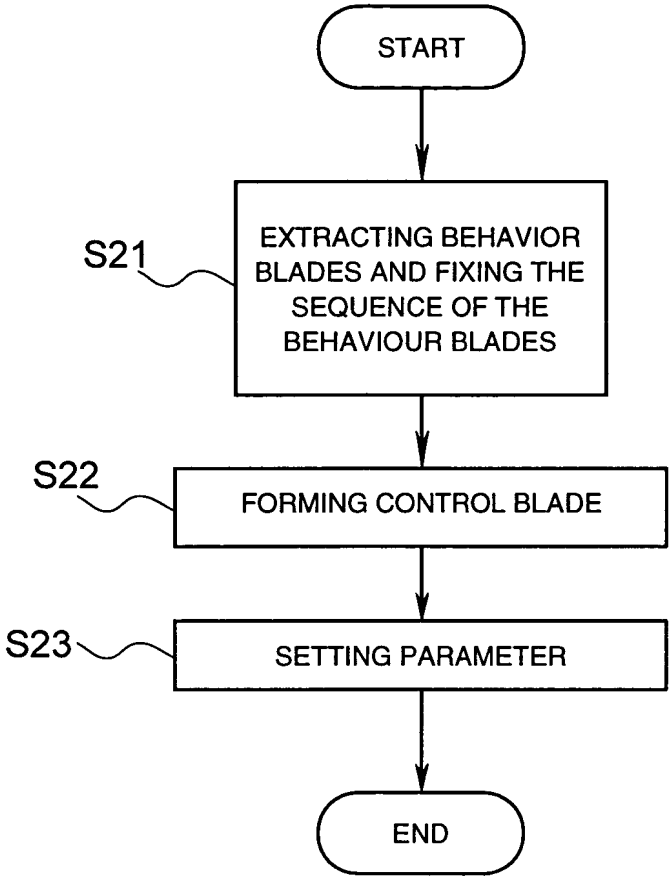

START
S21
EXTRACTING BEHAVIOR BLADES AND FIXING THE SEQUENCE OF THE BEHAVIOUR BLADES
S22
FORMING CONTROL BLADE
S23
SETTING PARAMETER
END

Fig. 17

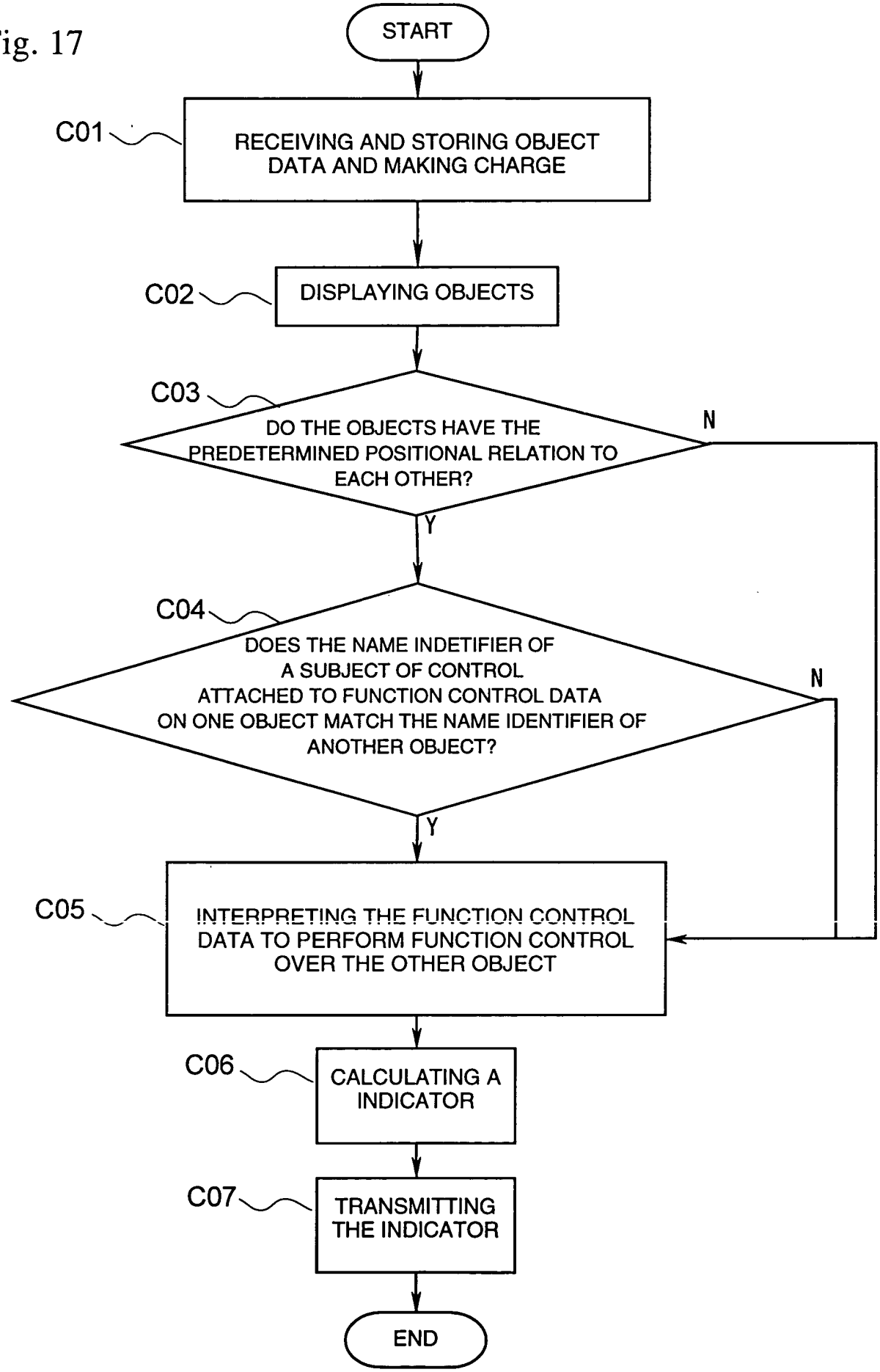
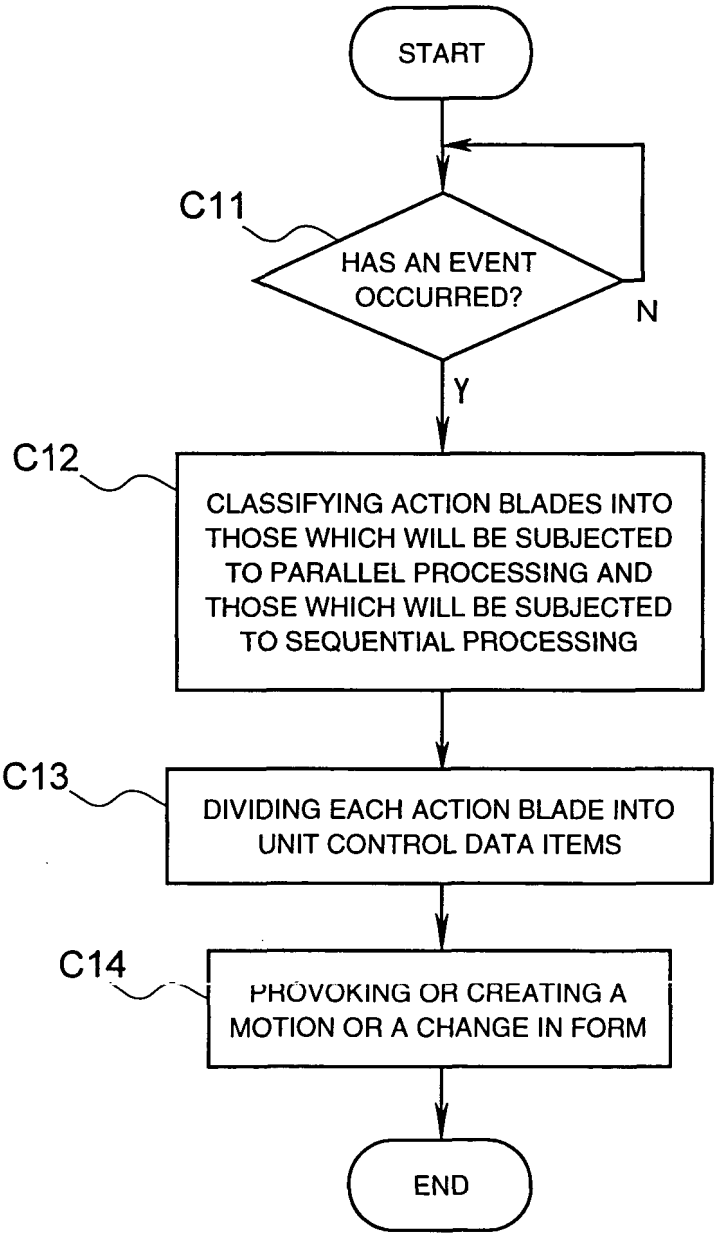

START
C01
RECEIVING AND STORING OBJECT DATA AND MAKING CHARGE
C02
DISPLAYING OBJECTS
C03
DO THE OBJECTS HAVE THE PREDETERMINED POSITIONAL RELATION TO EACH OTHER?
N
Y
C04
DOES THE NAME INDETIFIER OF A SUBJECT OF CONTROL ATTACHED TO FUNCTION CONTROL DATA ON ONE OBJECT MATCH THE NAME IDENTIFIER OF ANOTHER OBJECT?
N
Y
C05
INTERPRETING THE FUNCTION CONTROL DATA TO PERFORM FUNCTION CONTROL OVER THE OTHER OBJECT
C06
CALCULATING A INDICATOR
C07
TRANSMITTING THE INDICATOR
END

Fig. 18


START
C11
HAS AN EVENT OCCURRED?
N
Y
C12
CLASSIFYING ACTION BLADES INTO THOSE WHICH WILL BE SUBJECTED TO PARALLEL PROCESSING AND THOSE WHICH WILL BE SUBJECTED TO SEQUENTIAL PROCESSING
C13
DIVIDING EACH ACTION BLADE INTO UNIT CONTROL DATA ITEMS
C14
PROVOKING OR CREATING A MOTION OR A CHANGE IN FORM
END

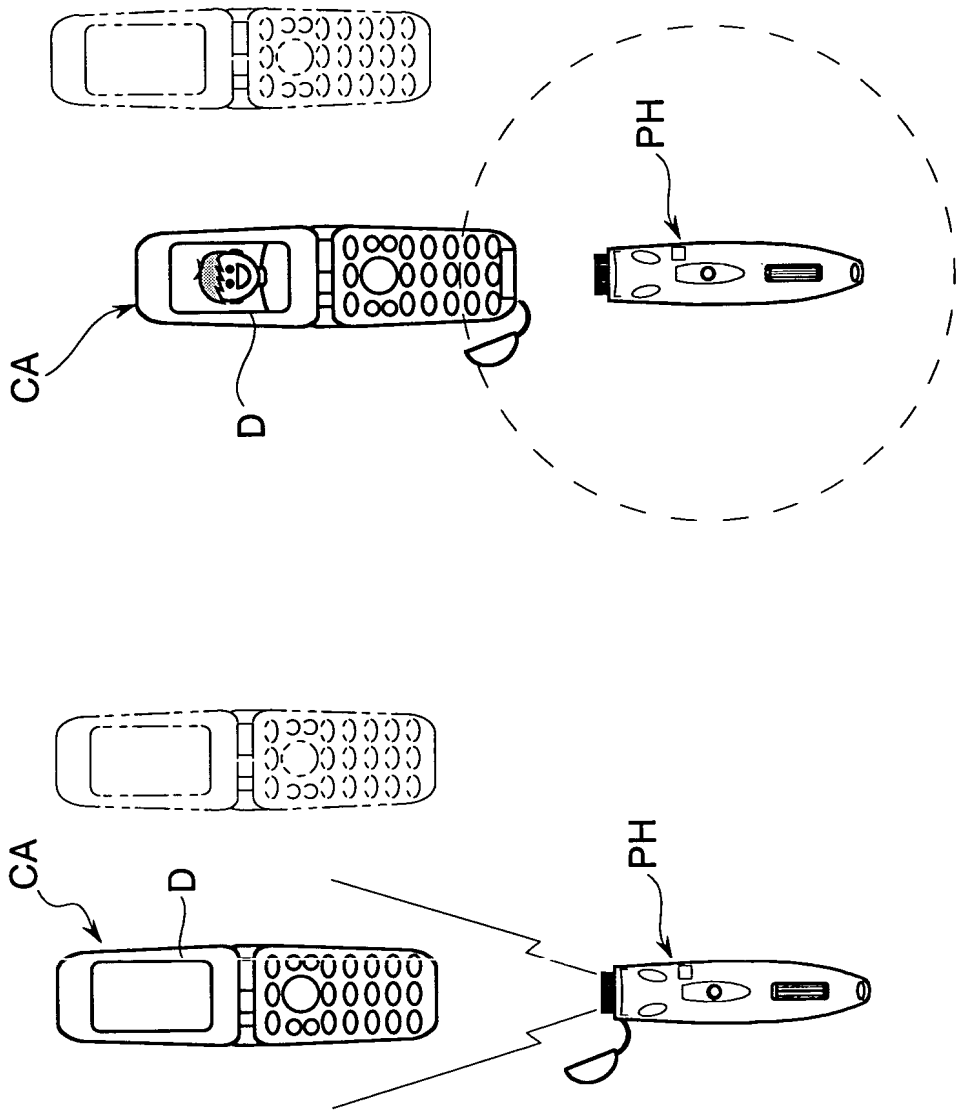


Fig. 19

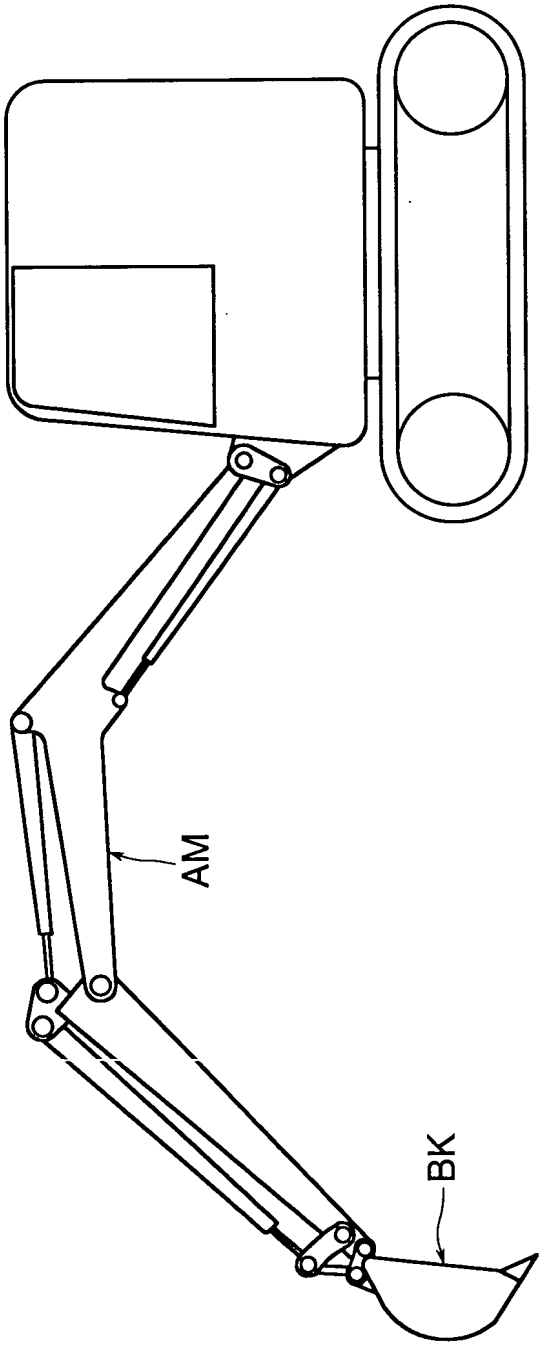


Fig. 20

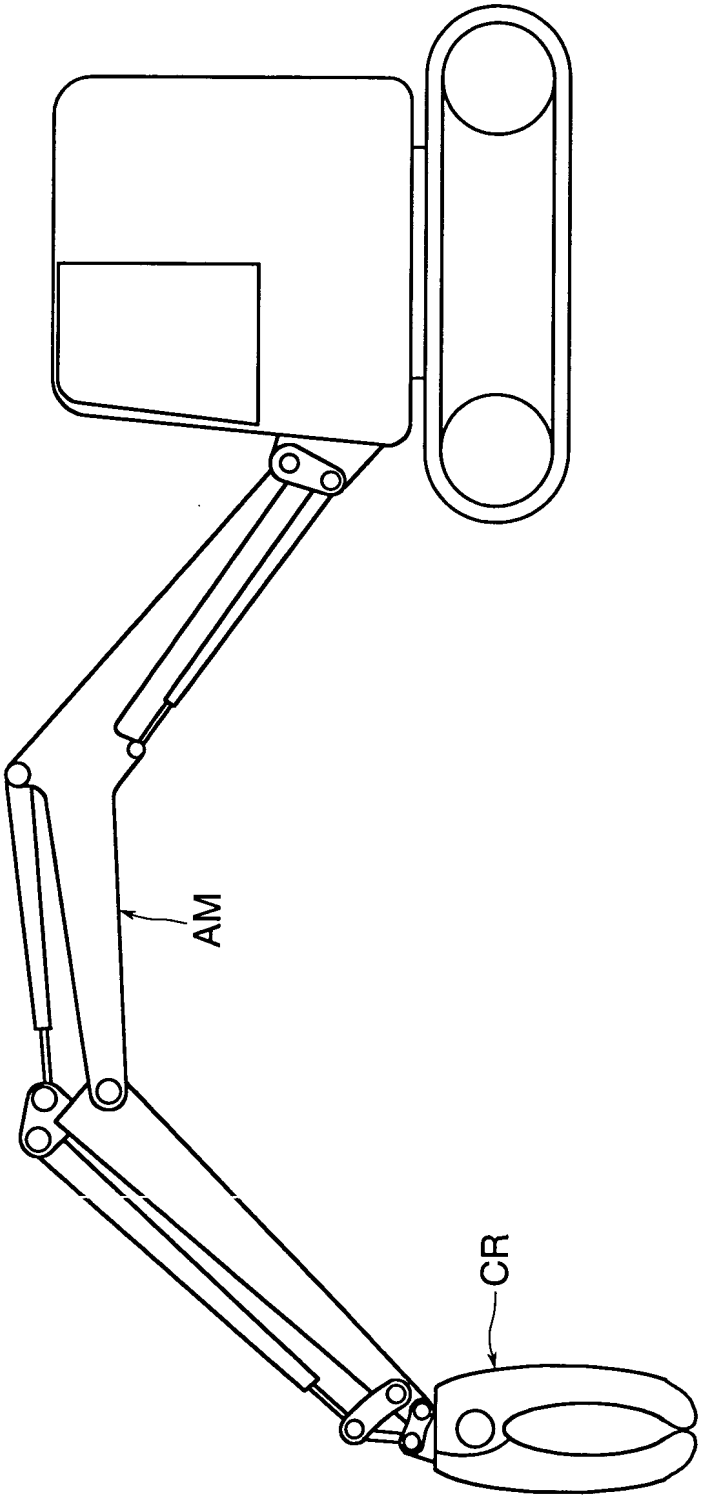


Fig. 21

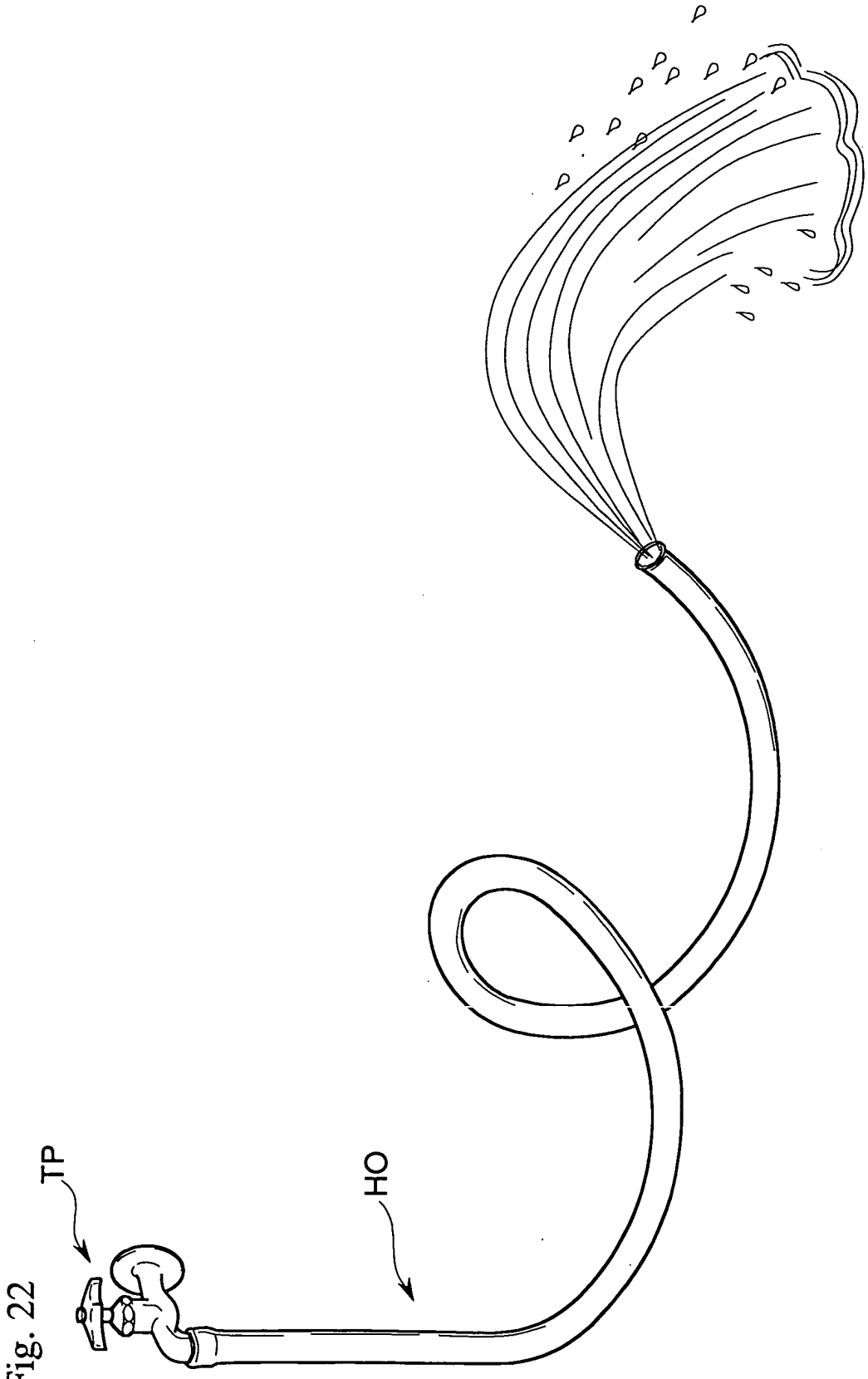


Fig. 22

Fig. 23

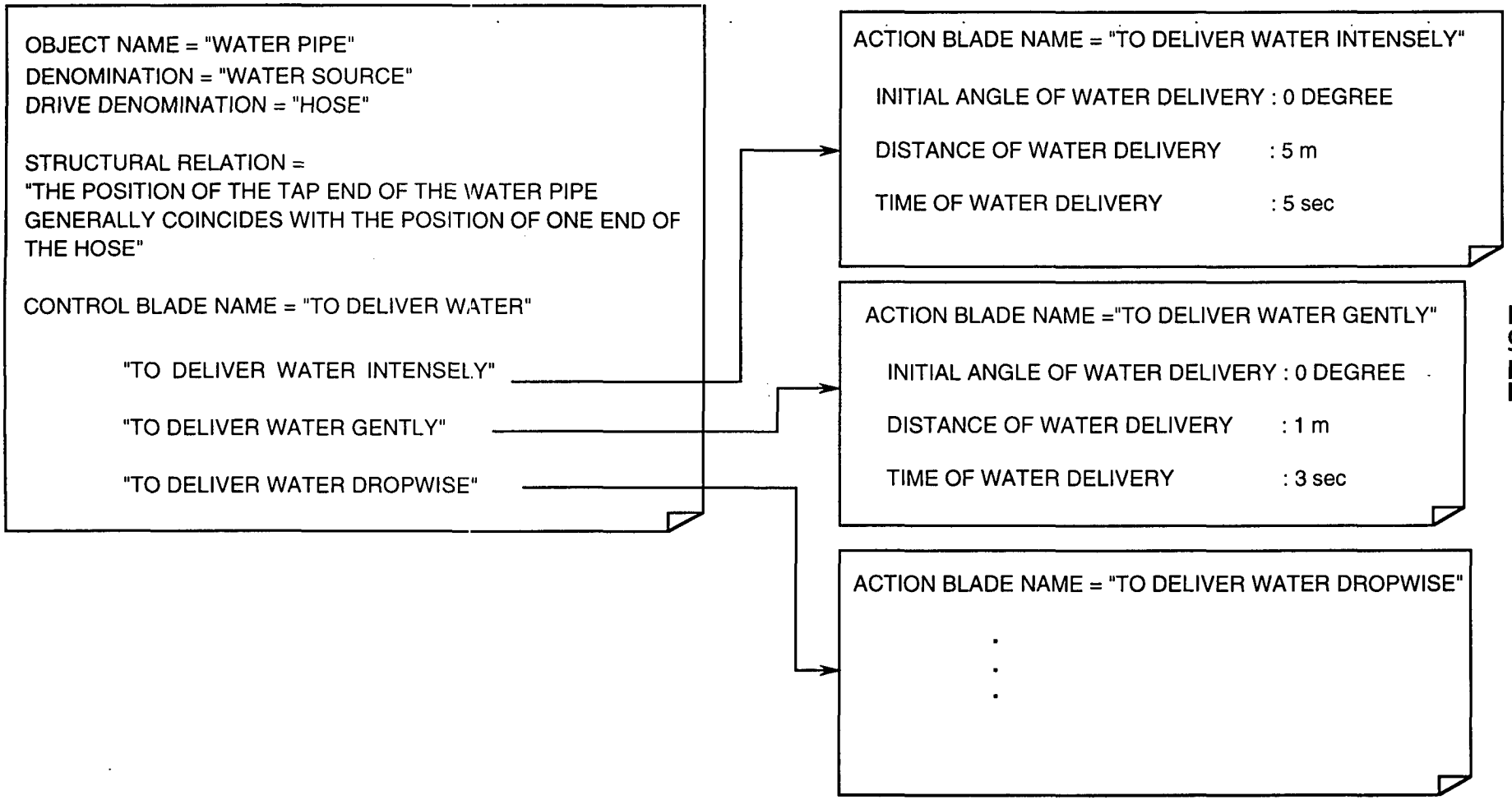

OBJECT NAME = "WATER PIPE"
DENOMINATION = "WATER SOURCE"
DRIVE DENOMINATION = "HOSE"
STRUCTURAL RELATION =
"THE POSITION OF THE TAP END OF THE WATER PIPE GENERALLY COINCIDES WITH THE POSITION OF ONE END OF THE HOSE"
CONTROL BLADE NAME = "TO DELIVER WATER"
"TO DELIVER WATER INTENSELY"
"TO DELIVER WATER GENTLY"
"TO DELIVER WATER DROPWISE"
ACTION BLADE NAME = "TO DELIVER WATER INTENSELY"
INITIAL ANGLE OF WATER DELIVERY : 0 DEGREE
DISTANCE OF WATER DELIVERY : 5 m
TIME OF WATER DELIVERY : 5 sec
ACTION BLADE NAME ="TO DELIVER WATER GENTLY"
INITIAL ANGLE OF WATER DELIVERY : 0 DEGREE
DISTANCE OF WATER DELIVERY : 1 m
TIME OF WATER DELIVERY : 3 sec
ACTION BLADE NAME = "TO DELIVER WATER DROPWISE"

Fig. 24

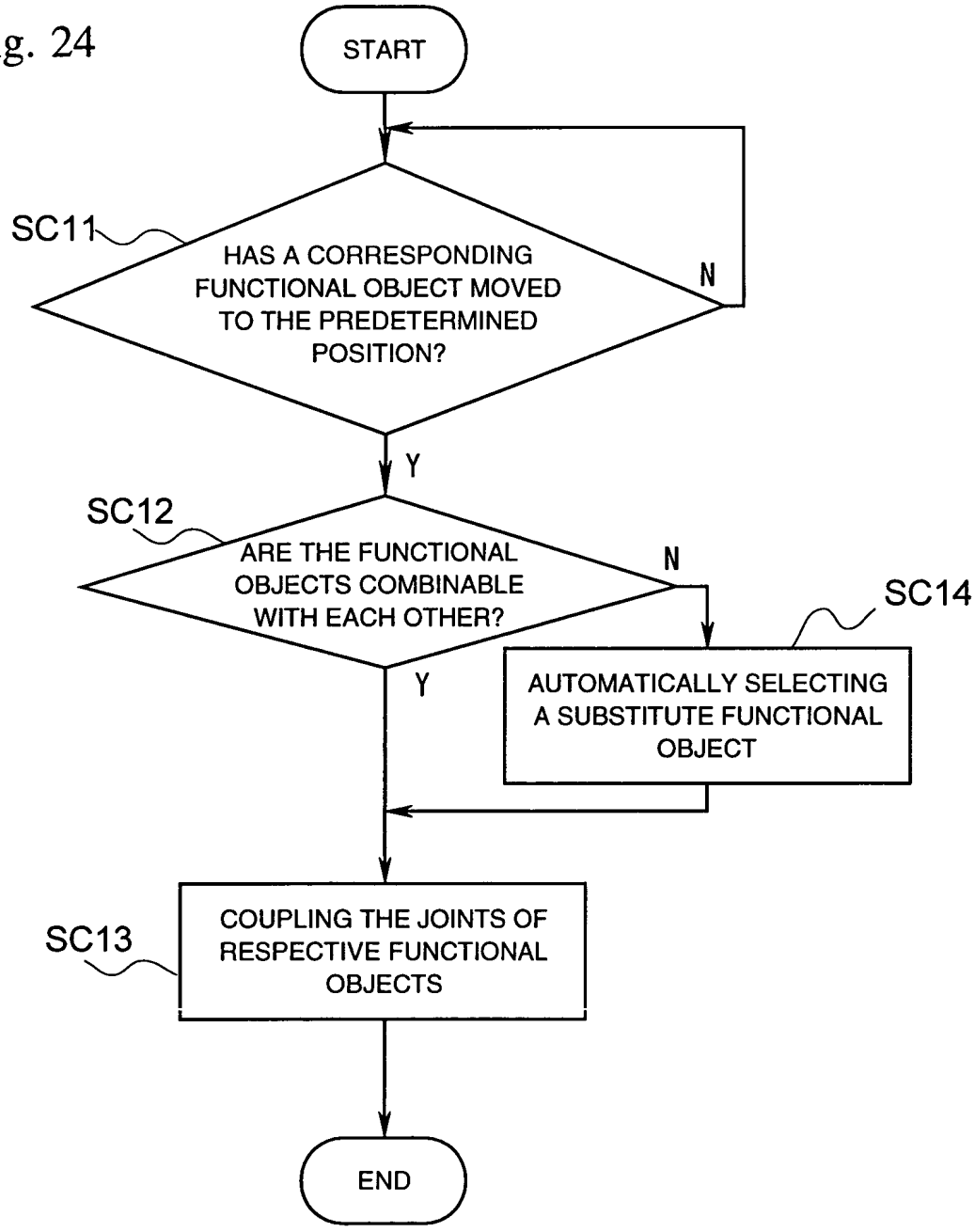

START
SC11
HAS A CORRESPONDING FUNCTIONAL OBJECT MOVED TO THE PREDETERMINED POSITION?
N
Y
SC12
ARE THE FUNCTIONAL OBJECTS COMBINABLE WITH EACH OTHER?
N
SC14
AUTOMATICALLY SELECTING A SUBSTITUTE FUNCTIONAL OBJECT
Y
SC13
COUPLING THE JOINTS OF RESPECTIVE FUNCTIONAL OBJECTS
END

Fig. 25

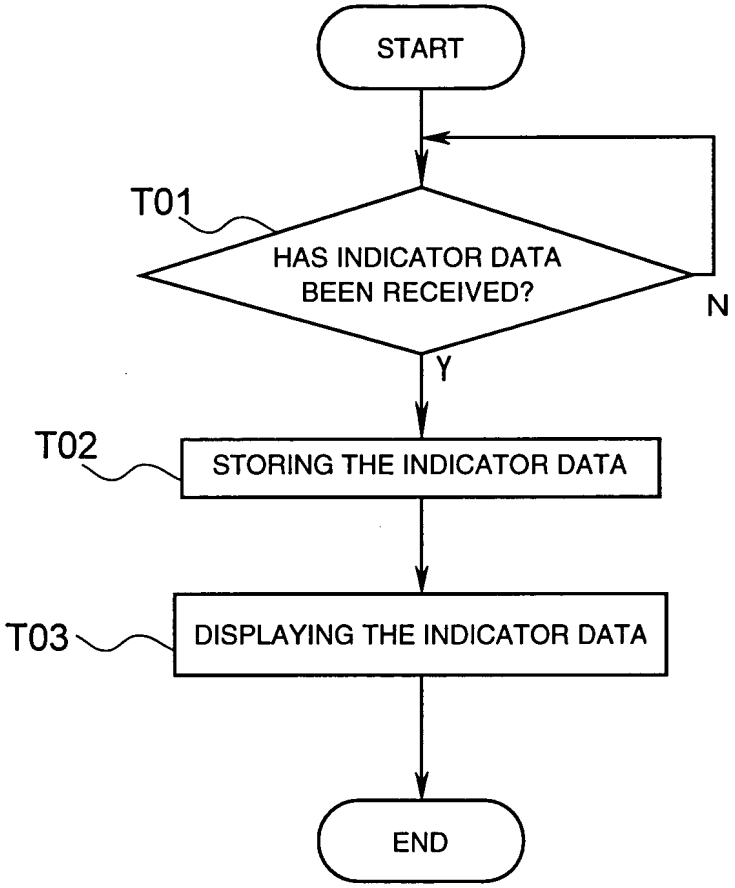
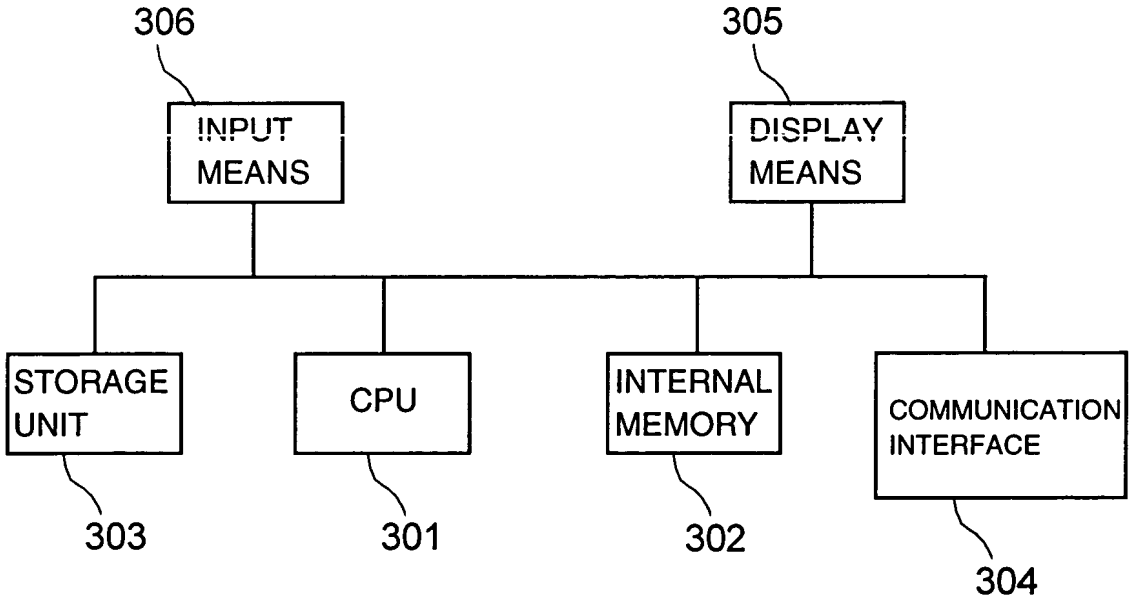

START
T01
HAS INDICATOR DATA BEEN RECEIVED?
N
Y
T02
STORING THE INDICATOR DATA
T03
DISPLAYING THE INDICATOR DATA
END

Fig. 26


306
INPUT MEANS
305
DISPLAY MEANS
STORAGE UNIT
CPU
INTERNAL MEMORY
COMMUNICATION INTERFACE
303
301
302
304